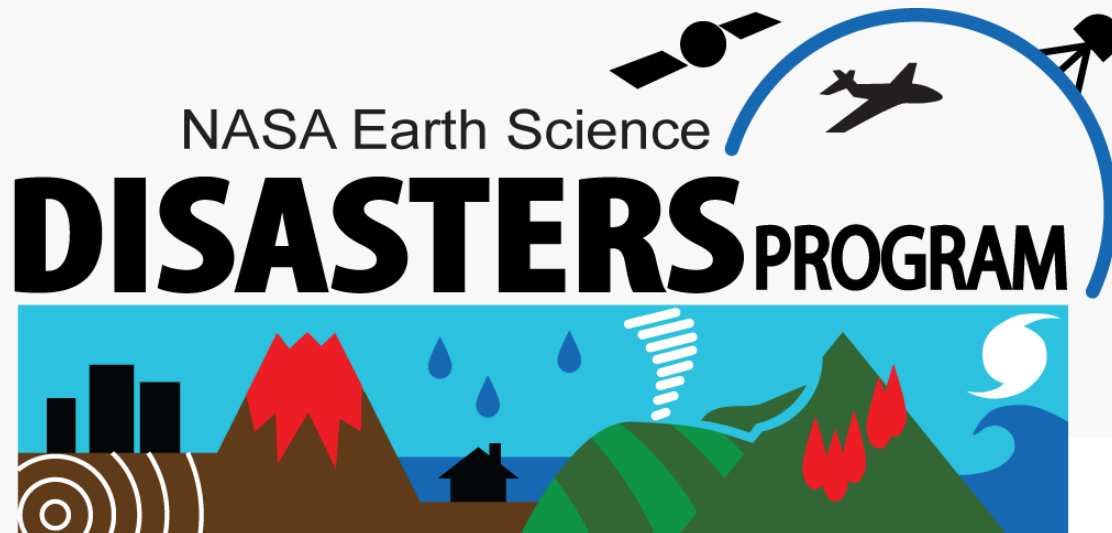


# Disasters Update

May 10<sup>th</sup>, 2018

GSFC Disaster Coordinators

- [Miguel.O.Roman@nasa.gov](mailto:Miguel.O.Roman@nasa.gov)
- [Dalia.B.Kirschbaum@nasa.gov](mailto:Dalia.B.Kirschbaum@nasa.gov)





# NASA Applied Sciences Perspective: Latest Activities

## ROSES 2018 A.37 Disaster Risk Reduction and Response



The NASA Earth Science Division (ESD), Applied Sciences Program solicits proposals for user-centric applications research enabling risk-informed decisions and actions.



CANCILLERÍA



- *2<sup>nd</sup> Ambassador Dialogue on DRR Across the Americans: Regional opportunities for harnessing Earth science to reduce economic impacts*
- *How can leadership advance the integration and use of science and technology, particularly EO data, in their DRR policies, plans, and approaches?*



**VI** Plataforma Regional  
para la Reducción del Riesgo  
de Desastres en las Américas

20 - 22 de Junio 2018 - Cartagena, Colombia



GOBIERNO DE COLOMBIA





# NASA Applied Sciences Perspective

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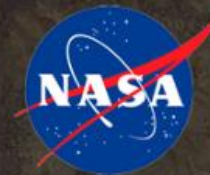
- Promote the use of Earth observations to improve prediction of, preparation for, response to, and recovery from natural and technological disasters.
- Support emergency preparedness leaders in developing mitigation approaches, such as early warning systems
- Providing information and maps to disaster response and recovery teams.



# Active Disaster Responses



NASA Applied Sciences Program | [www.nasa.gov](http://www.nasa.gov)



Search



ORGANIZATION

DISASTERS

RESILIENCE

RESOURCES

May 8, 2018

## Sulfur Dioxide Leaks from Kilauea

Data from the the Ozone Mapping Profiler Suite (OMPS) sensor on the Suomi NPP satellite, acquired April 30 - May 5, 2018 Kilauea has been erupting continuously since 1983, but in late April and early May...

[Read More](#)



Sulfur Dioxide (Dobson units)



Please join NASA at the GFDRR / World Bank Understanding Risk Forum on May 14th - 18th, 2018 in Mexico City, Mexico. NASA will be hosting a Side Event "From Space to Finance", a Session on "EO Data for Communication", as well as supporting the Water Youth Network's Pressure Cooker Event. [Register now.](#)

## Recent Responses

Kilauea, Hawaii Eruption 2018

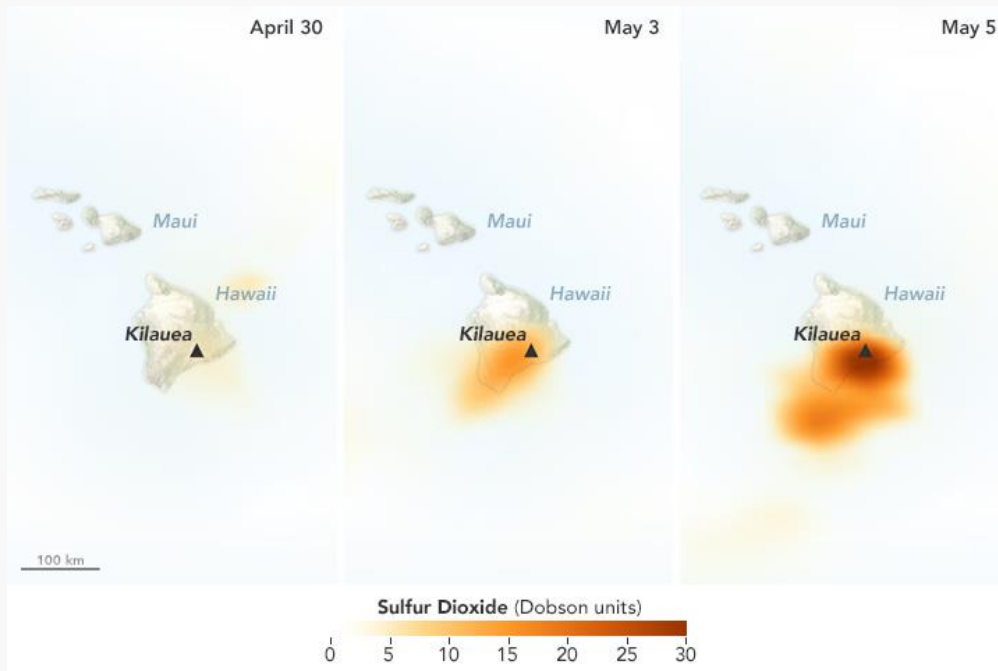
[Aoba \(Ambae\) Volcano Eruption](#)

## About the NASA Disasters Program

The Disasters Applications area promotes the use of Earth observations to improve prediction of, preparation for, response to, and recovery from natural and technological disasters.



# Sulfur Dioxide Leaks from Kilauea



Data from the Ozone Mapping Profiler Suite (OMPS) sensor on the Suomi NPP satellite, acquired April 30 - May 5, 2018

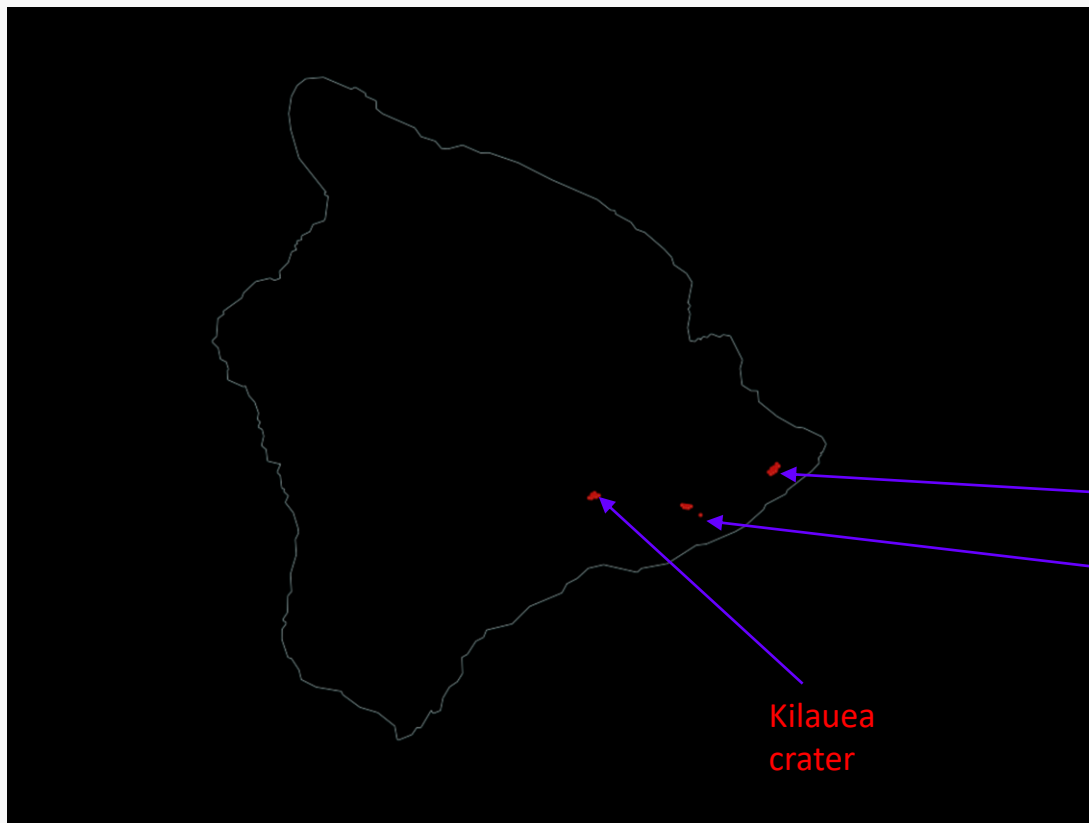


As of May 7, 2018, slow-moving lava flows had consumed 35 homes.



# VIIRS Thermal anomaly detection of volcanic event in Hawaii

Thermal detection 375 m  
Nighttime data  
May, 6<sup>th</sup> 11:40 UTC  
1:40 am HST



New Fissures  
Leilani Estates

Pu'u 'Ō'ō crater

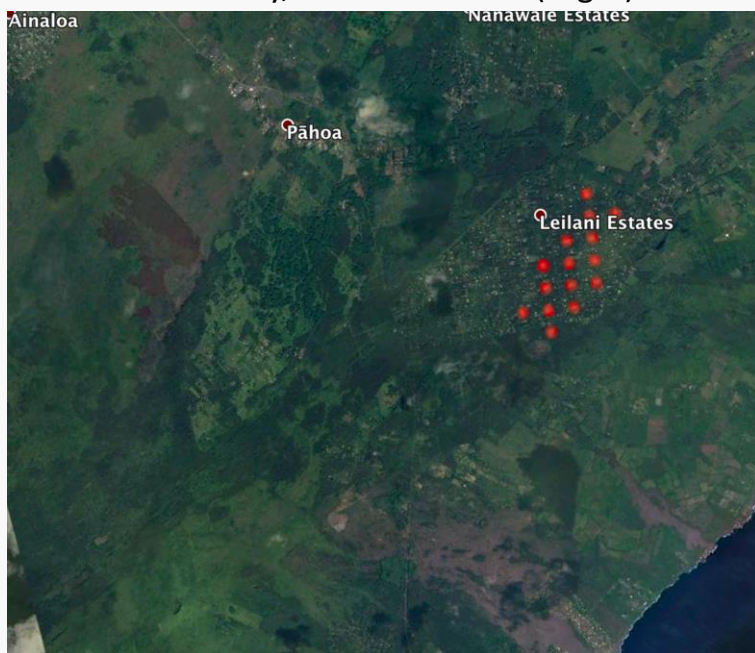
Kilauea  
crater

Jean-Paul Vernier  
NIA/LaRC  
Coordinator

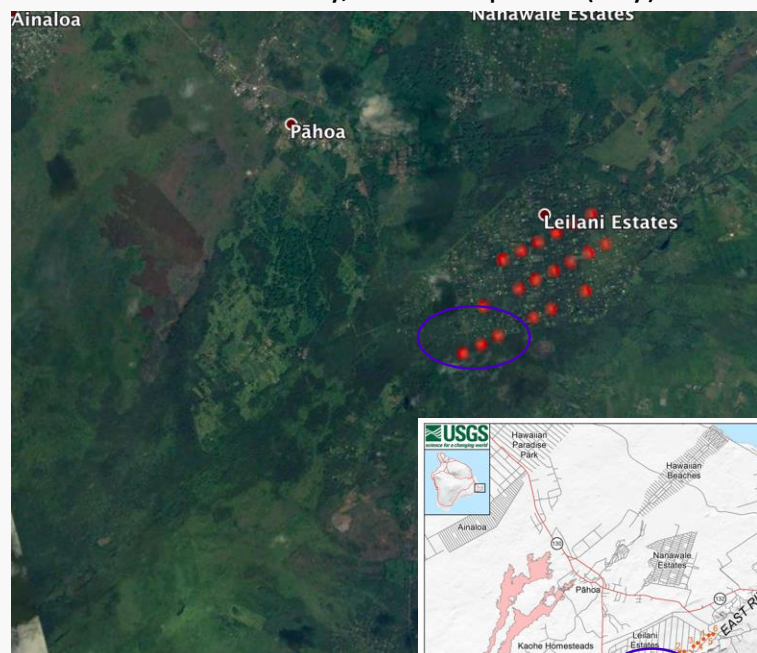


# VIIRS Thermal anomaly detection of volcanic event in Hawaii

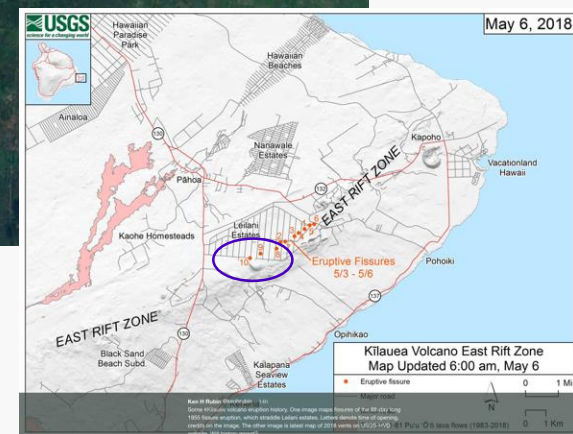
May,6<sup>th</sup> 1:40 am (Night)



May,6<sup>th</sup> 12:55 pm (day)



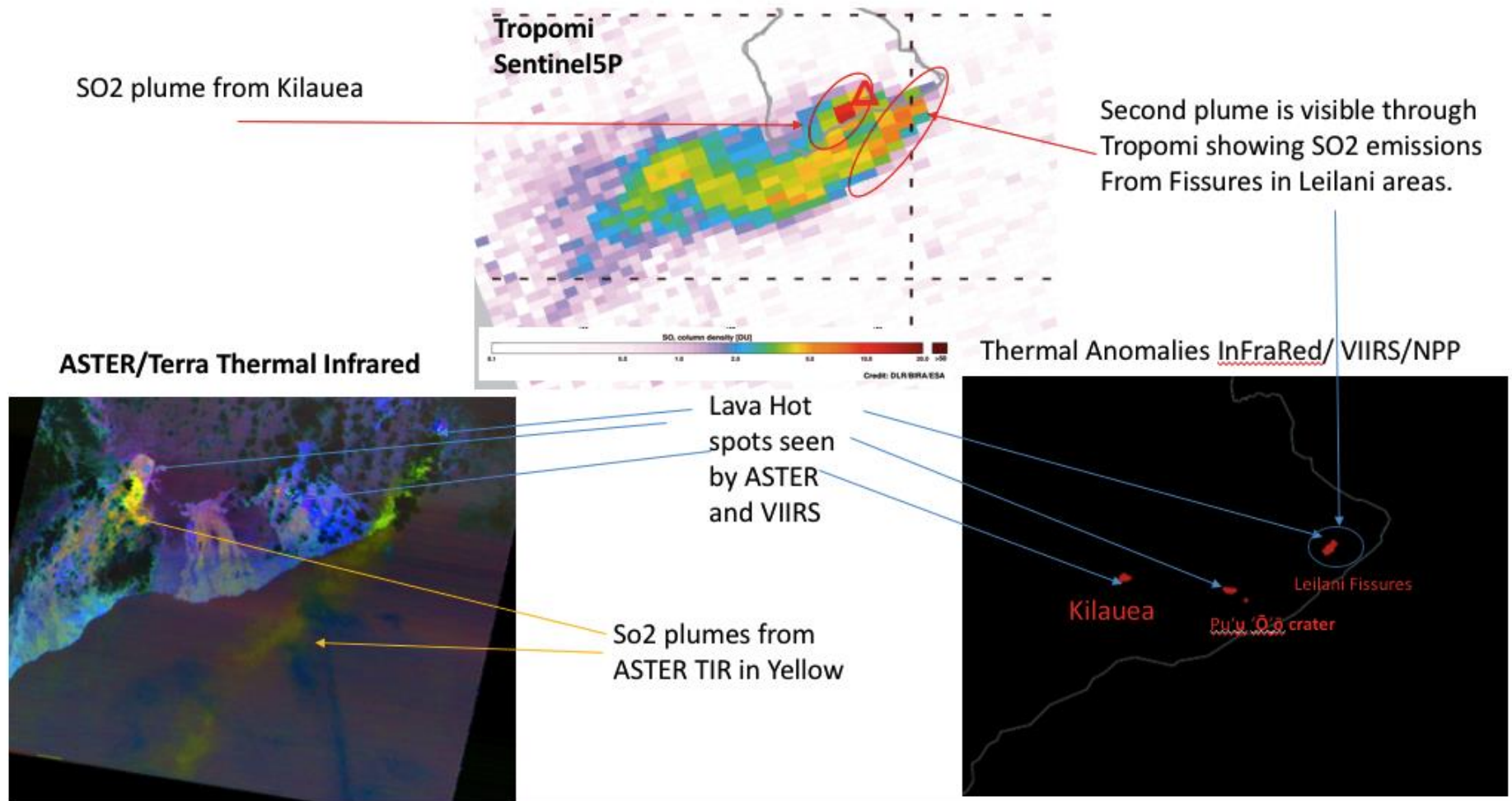
Extension of thermal anomalies South and West between nighttime and daytime observations consistent with USGS observations of new fissures (8-9-10)





# Satellite Views of SO<sub>2</sub> and Lava Thermal Anomalies from Volcanic Fissures in Hawaii

## SO<sub>2</sub> plumes and Thermal Anomalies from Hawaii Eruption; May, 6<sup>th</sup> 2018



The relative high resolution from ASTER and VIIRS (300-400m) are really unique to locate the new fissures which occurred in Leilani areas on May 3rd and May 4th and forced the evacuation of more than 1000 people.

# Disaster Portal



NASA Disasters Mapping Portal **BETA**

## Featured Maps and Apps



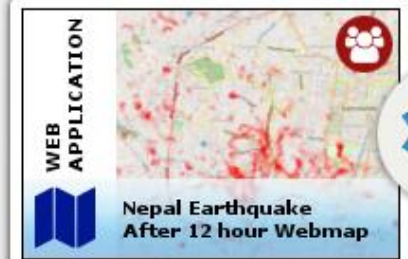
**Kilauea Volcano Eruption, Hawaii**



**Aoba (Ambae) Volcano Eruption, Vanuatu**



**Kauai, Hawaii Flooding; April 2018**



**Nepal Earthquake 4-25-2015 [USAR Exercise Map; 12**

## Legend

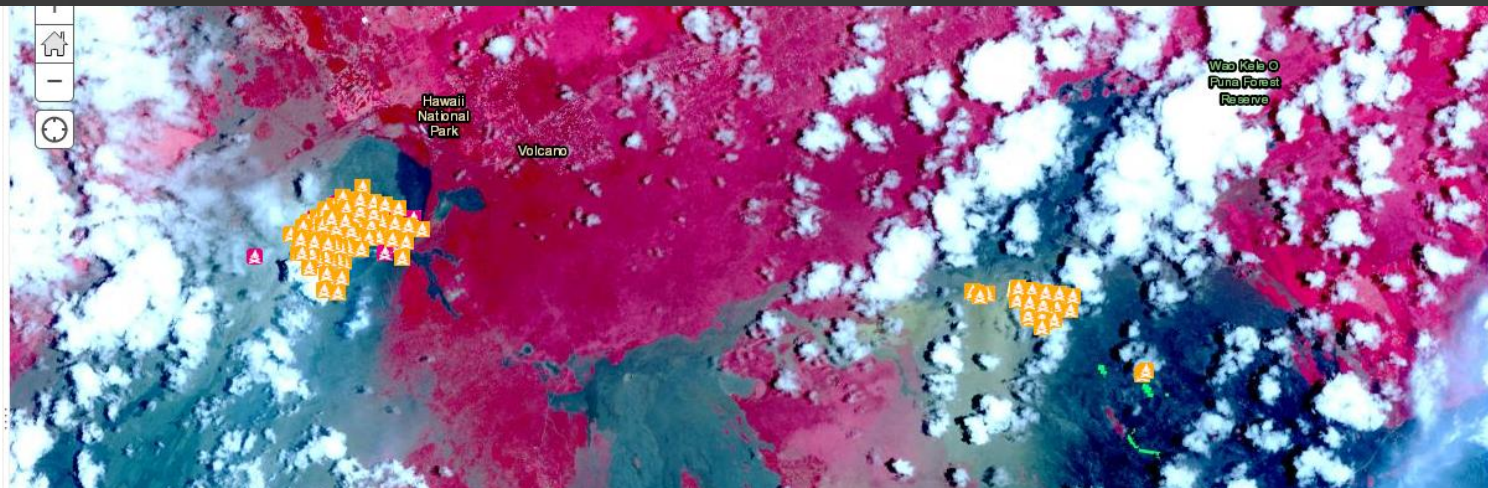
FIRMS Active Fire: previous 7 days, Update every 3 hours

FIRMS Active Fire Pts: VIIRS VNP14 Global 7 day period

FIRMS Active Fire Pts: MODIS C6 Global 7 day period

ASTER False Color and Hotspot Detection: 20180506

Red: Band\_1  
Green: Band\_2  
Blue: Band\_3



# NASA Applied Sciences Perspective

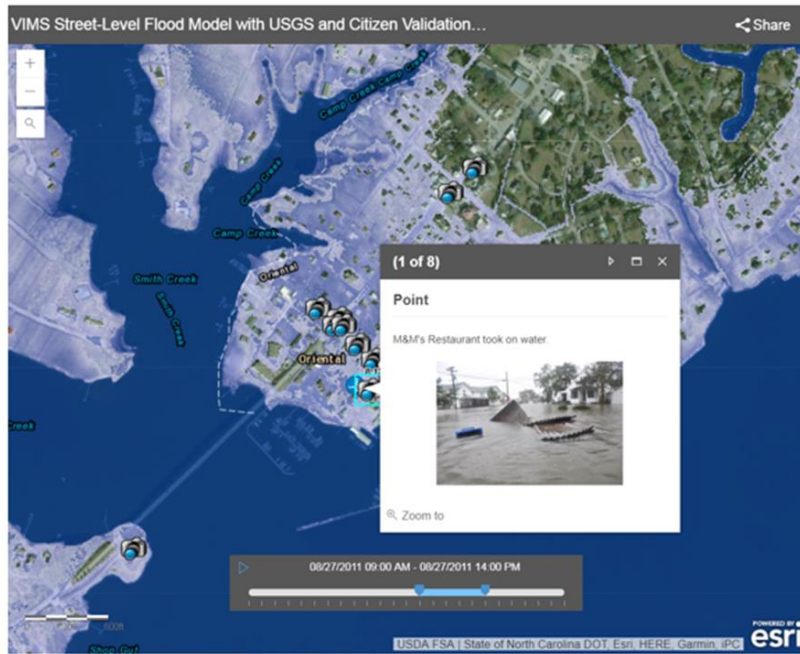
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- Promote the use of Earth observations to improve prediction of, preparation for, response to, and recovery from natural and technological disasters.
- Support emergency preparedness leaders in developing mitigation approaches, such as early warning systems
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# CAIR - Communities and Areas at Intensive Risk

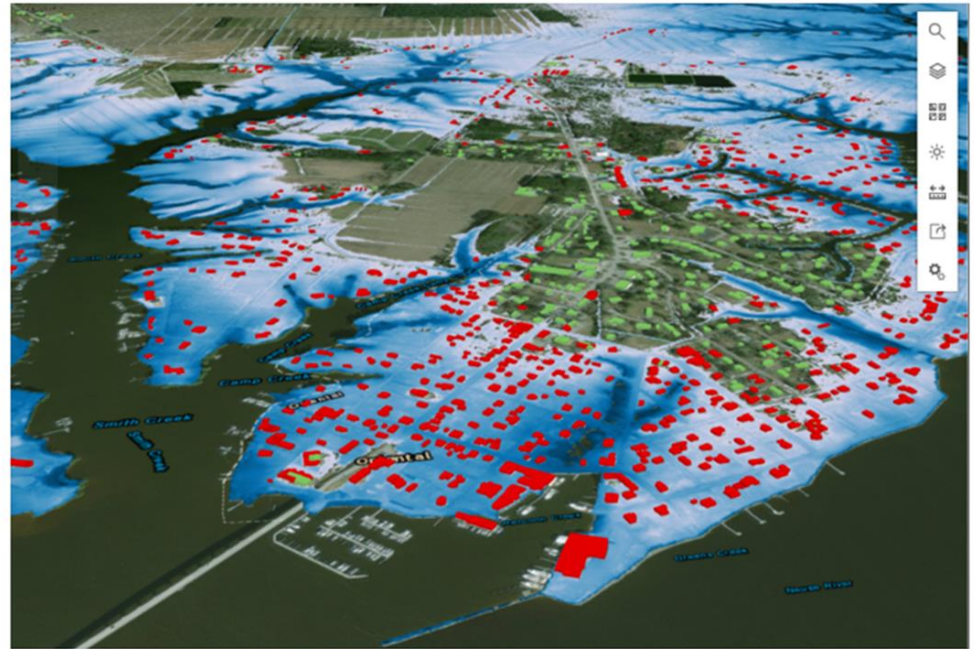
## Mid-Atlantic CAIR demonstration



### Oriental, NC – Hurricane Irene (27-29 Aug 2011)

Blue represents predicted flooding based on VIMS Street level flood modeling

Photos are actual flooding following Hurricane Irene



### Oriental, NC – Hurricane Irene (27-29 Aug 2011)

Blue represents predicted flooding based on VIMS Street level flood modeling

Red indicates homes where high water exceeds the first floor elevation (FFE) – home is flooded

Green indicates water has not exceeded FFE

**Hurricane simulations (e.g., Hurricane Irene hindcast with support from NASA-SPoRT) can produce flood predictions a provide a picture of vulnerable areas.**



# NASA Applied Sciences Perspective

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- Promote the use of Earth observations to improve prediction of, preparation for, response to, and recovery from natural and technological disasters.
- Support emergency preparedness leaders in developing mitigation approaches, such as early warning systems
- Providing information and maps to disaster response and recovery teams.

# HQ Monthly Status Reports (MSR)



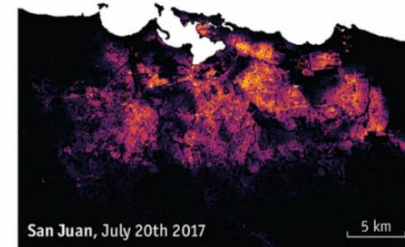
<https://bit.ly/2IXJmfs>



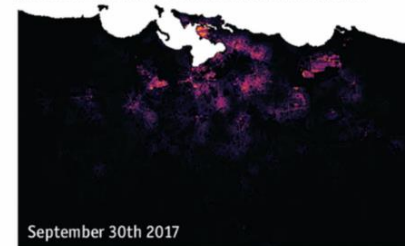
## Illuminating

Night-light intensity in San Juan

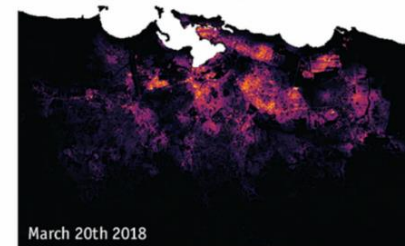
Before Hurricane Maria makes landfall



Immediate aftermath of Hurricane Maria



Six months after Hurricane Maria



Source: Suomi NPP VIIRS data from Miguel Román, NASA Disasters Programme

Economist.com

The April 2018 issue of The Economist featured data and images from NASA's Black Marble Science Team in an article about the recovery of Puerto Rico's energy sector six months after Hurricane Maria devastated the island.